```
file reg
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.21       0.21

FILE 'REGISTRY' ENTERED AT 15:15:22 ON 05 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    4 JUL 2006  HIGHEST RN 890521-76-3
DICTIONARY FILE UPDATES:   4 JUL 2006  HIGHEST RN 890521-76-3

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> s (1)/Pt and (0-4)/(fe or co or ni or sn or mn or cr or v or ti or mo or nb or zr or w
or ta or hf) and (0.005-1)/n
MISSING OPERATOR

=> s (1)/Pt and (0-4)/(fe or co or ni or sn or mn or cr) and (0.005-1)/n
MISSING OPERATOR

=> s (1)/Pt and (0-4)/(fe) and (0.005-1)/n
MISSING OPERATOR

=> s (1)/Pt and (0-4)/fe and (0.005-1)/n
        119362 (1)/PT
        800304 (0-4)/FE
       5053674 (0.005-1)/N
L1         428 (1)/PT AND (0-4)/FE AND (0.005-1)/N

=> s (1)/Pt and (0-4)/fe or co or ni or sn or mn or cr and (0.005-1)/n
        119362 (1)/PT
        800304 (0-4)/FE
        368239 CO
           658 COS
        368883 CO
                 (CO OR COS)
        360897 NI
           451 NIS
        361346 NI
                 (NI OR NIS)
         82721 SN
            47 SNS
         82768 SN
                 (SN OR SNS)
        410257 MN
           360 MNS
        410584 MN
                 (MN OR MNS)
        338648 CR
```

```
            77 CRS
        338723 CR
                 (CR OR CRS)
       5053674 (0.005-1)/N
L2      956044 (1)/PT AND (0-4)/FE OR CO OR NI OR SN OR MN OR CR AND (0.005-1)/
               N

=> file caplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                      58.96      59.17

FILE 'CAPLUS' ENTERED AT 15:24:36 ON 05 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)


Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
American Chemical Society and is provided to assist you in searching
databases on STN.  Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 5 Jul 2006  VOL 145 ISS 2
FILE LAST UPDATED: 4 Jul 2006  (20060704/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply.
They are available for your review at:

http://www.cas.org/infopolicy.html

=> sl1 and "fuel cell catalyst"
SL1 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l1 and "fuel cell catalyst"
           155 L1
        379583 "FUEL"
        162947 "FUELS"
        430878 "FUEL"
                 ("FUEL" OR "FUELS")
       2076546 "CELL"
       1819260 "CELLS"
       2748809 "CELL"
                 ("CELL" OR "CELLS")
        726700 "CATALYST"
        729619 "CATALYSTS"
        932548 "CATALYST"
                 ("CATALYST" OR "CATALYSTS")
          1058 "FUEL CELL CATALYST"
                 ("FUEL"(W)"CELL"(W)"CATALYST")
L3           1 L1 AND "FUEL CELL CATALYST"

=> s l1 and "fuel cell" and  catalyst
           155 L1
        379583 "FUEL"
        162947 "FUELS"
        430878 "FUEL"
                 ("FUEL" OR "FUELS")
```

```
        2076546 "CELL"
        1819260 "CELLS"
        2748809 "CELL"
                  ("CELL" OR "CELLS")
          62844 "FUEL CELL"
                  ("FUEL"(W)"CELL")
         726700 CATALYST
         729619 CATALYSTS
         932548 CATALYST
                  (CATALYST OR CATALYSTS)
L4            1 L1 AND "FUEL CELL" AND  CATALYST

=> dl4 1-ibib iabs
DL4 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> d l4 1-ibib iabs
'1-IBIB' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'

The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
CLASS ------- IPC, NCL, ECLA, FTERM
DALL -------- ALL, delimited (end of each field identified)
DMAX -------- MAX, delimited for post-processing
FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
STD --------- BIB, CLASS

IABS -------- ABS, indented with text labels
IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
SIBIB ------- IBIB, no citations

HIT --------- Fields containing hit terms
HITIND ------ IC, ICA, ICI, NCL, CC and index field (ST and IT)
              containing hit terms
HITRN ------- HIT RN and its text modification
HITSTR ------ HIT RN, its text modification, its CA index name, and
              its structure diagram
HITSEQ ------ HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
              its structure diagram
```

FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
structure diagram, plus NTE and SEQ fields
KWIC -------- Hit term plus 20 words on either side
OCC --------- Number of occurrence of hit term and field in which it occurs

To display a particular field or fields, enter the display field codes. For a list of the display field codes, enter HELP DFIELDS at an arrow prompt (=>). Examples of formats include: TI; TI,AU; BIB,ST; TI,IND; TI,SO. You may specify the format fields in any order and the information will be displayed in the same order as the format specification.

All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR, FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC to view a specified Accession Number.
ENTER DISPLAY FORMAT (BIB):ibib

L4 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:201028 CAPLUS
DOCUMENT NUMBER: 140:220745
TITLE: Fuel cell catalysts, fuel cell electrodes, and their manufacture
INVENTOR(S): Ume, Takeshi; Nakano, Yoshihiko
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 2004079438	A2	20040311	JP 2002-241061		20020821
JP 3651799	B2	20050525			
US 2004121219	A1	20040624	US 2003-643974		20030820
PRIORITY APPLN. INFO.:			JP 2002-241061	A	20020821

=> d l4 1- ibib iabs
YOU HAVE REQUESTED DATA FROM 1 ANSWERS - CONTINUE? Y/(N):y

L4 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:201028 CAPLUS
DOCUMENT NUMBER: 140:220745
TITLE: Fuel cell catalysts, fuel cell electrodes, and their manufacture
INVENTOR(S): Ume, Takeshi; Nakano, Yoshihiko
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 2004079438	A2	20040311	JP 2002-241061		20020821
JP 3651799	B2	20050525			
US 2004121219	A1	20040624	US 2003-643974		20030820
PRIORITY APPLN. INFO.:			JP 2002-241061	A	20020821
ABSTRACT:
Catalysts having composition formula ATxNu (A = Pt or Pt with ≥1 of

Ru, Pd, Au, and Ag; T = Fe, Co, Ni, Sn, Mn, Cr, V, Ti, Mo, Nb, Zr, W, Ta, and/or Hf; x = 0-4; u = 0.005-1) and their manufacture by nitridation of Pt-containing ***catalyst*** precursors at 200-1000° for 0.05-100 h in an atmospheric containing ≥0.05 atm NH3 are claimed. Also claimed are fuel ***cell*** electrodes equipped with a layer containing ferromagnetic ***catalyst*** particles of composition formula RT1uM1vA1w (R = elements same as A; T1 = Fe and/or Co; M1 = Mo, Sn, Ni, W, Ti, Zr, Nb, V, Ta, Hf, Mn, and/or Cr; A1 = N, C, B, and/or P; u = 0.2-4; v = 0-1; w = 0-1) oriented in 1 direction. Such electrodes are manufactured by application of a slurry containing ferromagnetic ***catalyst*** particles, proton conductors, and organic solvents onto a support followed by its drying in magnetic field of ≥0.1 T. The ***catalysts*** have good balance in their stability and activity.

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	17.42	76.59

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-0.75	-0.75

FILE 'REGISTRY' ENTERED AT 15:26:47 ON 05 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 4 JUL 2006 HIGHEST RN 890521-76-3
DICTIONARY FILE UPDATES: 4 JUL 2006 HIGHEST RN 890521-76-3

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> s (1)/Pt and (0-4)/fe or (0-4)/co or (0-4)/ni or (0-4)/sn or (0-4)/mn or (0-4)/cr and (0.005-1)/n

```
        119362 (1)/PT
        800304 (0-4)/FE
        361046 (0-4)/CO
        496359 (0-4)/NI
        190651 (0-4)/SN
        469291 (0-4)/MN
        415269 (0-4)/CR
       5053674 (0.005-1)/N
L5     1258601 (1)/PT AND (0-4)/FE OR (0-4)/CO OR (0-4)/NI OR (0-4)/SN OR (0-4)
               /MN OR (0-4)/CR AND (0.005-1)/N
```

=> file caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	38.96	115.55

```
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)        SINCE FILE      TOTAL
                                                     ENTRY    SESSION
CA SUBSCRIBER PRICE                                   0.00      -0.75

FILE 'CAPLUS' ENTERED AT 15:28:07 ON 05 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)


Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
American Chemical Society and is provided to assist you in searching
databases on STN.  Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 5 Jul 2006  VOL 145 ISS 2
FILE LAST UPDATED: 4 Jul 2006  (20060704/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply.
They are available for your review at:

http://www.cas.org/infopolicy.html

=> s l5
TOO MANY TERMS FOR FILE CROSSOVER IN L5
There are limits on the size of an answer set being crossed over from
one file to another.  Enter HELP CROSSOVER at an arrow prompt (=>)
for specific information.

=> s l5 and "fuel cell" and catalyst
TOO MANY TERMS FOR FILE CROSSOVER IN L5
There are limits on the size of an answer set being crossed over from
one file to another.  Enter HELP CROSSOVER at an arrow prompt (=>)
for specific information.

=> s l5 and "fuel cell" and catalystfile reg
TOO MANY TERMS FOR FILE CROSSOVER IN L5
There are limits on the size of an answer set being crossed over from
one file to another.  Enter HELP CROSSOVER at an arrow prompt (=>)
for specific information.

=> file reg
COST IN U.S. DOLLARS                              SINCE FILE      TOTAL
                                                     ENTRY    SESSION
FULL ESTIMATED COST                                   0.46     116.01

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)        SINCE FILE      TOTAL
                                                     ENTRY    SESSION
CA SUBSCRIBER PRICE                                   0.00      -0.75

FILE 'REGISTRY' ENTERED AT 15:28:43 ON 05 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    4 JUL 2006  HIGHEST RN 890521-76-3
DICTIONARY FILE UPDATES:   4 JUL 2006  HIGHEST RN 890521-76-3
```

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

```
=> s (1)/Pt and (0-4)/fe and (0.005-1)/n
        119362 (1)/PT
        800304 (0-4)/FE
       5053674 (0.005-1)/N
L6         428 (1)/PT AND (0-4)/FE AND (0.005-1)/N

=> s (1)/Pt and (0-4)/co and (0.005-1)/n
        119362 (1)/PT
        361046 (0-4)/CO
       5053674 (0.005-1)/N
L7          79 (1)/PT AND (0-4)/CO AND (0.005-1)/N

=> s (1)/Pt and (0-4)/ni and (0.005-1)/n
        119362 (1)/PT
        496359 (0-4)/NI
       5053674 (0.005-1)/N
L8          36 (1)/PT AND (0-4)/NI AND (0.005-1)/N

=> s (1)/Pt and (0-4)/sn and (0.005-1)/n
        119362 (1)/PT
        190651 (0-4)/SN
       5053674 (0.005-1)/N
L9         193 (1)/PT AND (0-4)/SN AND (0.005-1)/N

=> s (1)/Pt and (0-4)/mn and (0.005-1)/n
        119362 (1)/PT
        469291 (0-4)/MN
       5053674 (0.005-1)/N
L10         60 (1)/PT AND (0-4)/MN AND (0.005-1)/N

=> s (1)/Pt and (0-4)/cr and (0.005-1)/n
        119362 (1)/PT
        415269 (0-4)/CR
       5053674 (0.005-1)/N
L11         57 (1)/PT AND (0-4)/CR AND (0.005-1)/N

=> file caplus
COST IN U.S. DOLLARS                            SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                                87.44     203.45

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)      SINCE FILE      TOTAL
                                                   ENTRY    SESSION
CA SUBSCRIBER PRICE                                 0.00      -0.75

FILE 'CAPLUS' ENTERED AT 15:30:55 ON 05 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)
```

Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
American Chemical Society and is provided to assist you in searching
databases on STN. Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 5 Jul 2006 VOL 145 ISS 2
FILE LAST UPDATED: 4 Jul 2006 (20060704/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply.
They are available for your review at:

http://www.cas.org/infopolicy.html

```
=> s l6-l11
            155 L6
             31 L7
             20 L8
             86 L9
             29 L10
             36 L11
L12         295 (L6 OR L7 OR L8 OR L9 OR L10 OR L11)

=> l12 and "fuel cell" and catalyst
L12 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l12 and "fuel cell" and catalyst
         379583 "FUEL"
         162947 "FUELS"
         430878 "FUEL"
                  ("FUEL" OR "FUELS")
        2076546 "CELL"
        1819260 "CELLS"
        2748809 "CELL"
                  ("CELL" OR "CELLS")
          62844 "FUEL CELL"
                  ("FUEL"(W)"CELL")
         726700 CATALYST
         729619 CATALYSTS
         932548 CATALYST
                  (CATALYST OR CATALYSTS)
L13           2 L12 AND "FUEL CELL" AND CATALYST

=> d l13 1-2 ibib iabs

L13  ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:         2004:201028  CAPLUS
DOCUMENT NUMBER:          140:220745
TITLE:                    Fuel cell catalysts,
                          fuel cell electrodes, and their
                          manufacture
INVENTOR(S):              Ume, Takeshi; Nakano, Yoshihiko
PATENT ASSIGNEE(S):       Toshiba Corp., Japan
SOURCE:                   Jpn. Kokai Tokkyo Koho, 22 pp.
                          CODEN: JKXXAF
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:
```

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004079438	A2	20040311	JP 2002-241061	20020821
JP 3651799	B2	20050525		
US 2004121219	A1	20040624	US 2003-643974	20030820
PRIORITY APPLN. INFO.:			JP 2002-241061 A	20020821

ABSTRACT:
Catalysts having composition formula ATxNu (A = Pt or Pt with ≥1 of Ru, Pd, Au, and Ag; T = Fe, Co, Ni, Sn, Mn, Cr, V, Ti, Mo, Nb, Zr, W, Ta, and/or Hf; x = 0-4; u = 0.005-1) and their manufacture by nitridation of Pt-containing ***catalyst*** precursors at 200-1000° for 0.05-100 h in an atmospheric containing ≥0.05 atm NH3 are claimed. Also claimed are fuel ***cell*** electrodes equipped with a layer containing ferromagnetic ***catalyst*** particles of composition formula RT1uM1vA1w (R = elements same as A; T1 = Fe and/or Co; M1 = Mo, Sn, Ni, W, Ti, Zr, Nb, V, Ta, Hf, Mn, and/or Cr; A1 = N, C, B, and/or P; u = 0.2-4; v = 0-1; w = 0-1) oriented in 1 direction. Such electrodes are manufactured by application of a slurry containing ferromagnetic ***catalyst*** particles, proton conductors, and organic solvents onto a support followed by its drying in magnetic field of ≥0.1 T. The ***catalysts*** have good balance in their stability and activity.

L13 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	1988:593727 CAPLUS
DOCUMENT NUMBER:	109:193727
TITLE:	Preparation of platinum cluster-impregnated electrodes and their methanol electrooxidation characteristics
AUTHOR(S):	Machida, Kenichi; Fukuoka, Atsusi; Ichikawa, Masaru; Enyo, Michio
CORPORATE SOURCE:	Res. Inst. Catal., Hokkaido Univ., Sapporo, 060, Japan
SOURCE:	Nippon Kagaku Kaishi (1988), (8), 1426-32 CODEN: NKAKB8; ISSN: 0369-4577
DOCUMENT TYPE:	Journal
LANGUAGE:	Japanese

ABSTRACT:
Pt and Ru cluster-supported electrodes were prepared from [Pt3(CO)6]n2M (n = 3,5), [PtCl2(SnCl3)2]2M, [Pt3Sn3Cl20]4M, [Pt3Fe3(CO)15]2M, and [HRu3(CO)11]M (M = Na+, NMe4+, NEt4+, NMe3(CH2Ph)+) as precursors, by an ion-exchange technique on an anion type solid polymer electrolyte (SPE) membrane or graphite which was surface-modified with a quaternary ammonium salt-silane containing agent. The cluster-supported electrodes with Pt9/C, Pt15/C (but not with Pt or Pt3) had an electrocatalytic specific activity of 0.5-1 order of magnitude higher than that of a common Pt electrode, in anodic MeOH oxidation in acidic media. Mixing of Pt and Ru clusters resulted in improved activity on C, but not on SPE. In Pt-Sn clusters, Pt3Sn8/C had noticeable activity only after strong anodic treatment. The amount of Pt required for MeOH fuel cells may be decreased by this technique of preparing Pt in a highly dispersed state. The catalytic activity towards the MeOH electrooxidn. of the Pt cluster-supported electrodes greatly dependeds on the Pt cluster size.

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	13.17	216.62
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-1.50	-2.25

FILE 'REGISTRY' ENTERED AT 15:33:04 ON 05 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 4 JUL 2006 HIGHEST RN 890521-76-3
DICTIONARY FILE UPDATES: 4 JUL 2006 HIGHEST RN 890521-76-3

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

```
=> s (1)/Pt and (0.005-1)/n
        119362 (1)/PT
       5053674 (0.005-1)/N
L14      15300 (1)/PT AND (0.005-1)/N

=> file caplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     9.96     226.58

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                     0.00      -2.25

FILE 'CAPLUS' ENTERED AT 15:33:22 ON 05 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)
```

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 5 Jul 2006 VOL 145 ISS 2
FILE LAST UPDATED: 4 Jul 2006 (20060704/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

http://www.cas.org/infopolicy.html

```
=> s l14 and "fuel cell" and catalyst
          5934 L14
        379583 "FUEL"
        162947 "FUELS"
        430878 "FUEL"
                 ("FUEL" OR "FUELS")
       2076546 "CELL"
```

```
       1819260 "CELLS"
       2748809 "CELL"
                 ("CELL" OR "CELLS")
         62844 "FUEL CELL"
                 ("FUEL"(W)"CELL")
        726700 CATALYST
        729619 CATALYSTS
        932548 CATALYST
                 (CATALYST OR CATALYSTS)
L15         34 L14 AND "FUEL CELL" AND CATALYST

=> d l15 1-34 ibib iabs

L15  ANSWER 1 OF 34  CAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:         2006:383185  CAPLUS
DOCUMENT NUMBER:          144:436089
TITLE:                    Manufacture of Pt-, Ru-, and P-containing fuel
                          electrode catalysts for fuel
                          cells
INVENTOR(S):              Ukawa, Kohei; Daimon, Hideo
PATENT ASSIGNEE(S):       Hitachi Maxell Ltd., Japan
SOURCE:                   Jpn. Kokai Tokkyo Koho, 14 pp.
                          CODEN: JKXXAF
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.         DATE
     ---------------      ----   --------    --------------------    --------
     JP 2006114299         A2    20060427    JP 2004-299592          20041014
PRIORITY APPLN. INFO.:                       JP 2004-299592          20041014
ABSTRACT:
The catalysts are manufactured by dispersing C substrates in water,
dissoln. of Pt sources, Ru sources, and P sources in the water, adjusting pH of
the aqueous solns. to the alkaline side, and reduction deposition of Pt-, Ru- and
P-containing
***catalyst***   fine particles on the C substrates.  The catalysts
have particle size <5 μm and high catalytic activity, and are useful for
direct methanol fuel cells and polymer electrolyte
***fuel***   cells.


L15  ANSWER 2 OF 34  CAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:         2006:273085  CAPLUS
DOCUMENT NUMBER:          144:295987
TITLE:                    Method of manufacture of catalyst for a
                          fuel cell
INVENTOR(S):              Zhou, Dau Min; Greenberg, Robert
PATENT ASSIGNEE(S):       USA
SOURCE:                   U.S. Pat. Appl. Publ., 18 pp., Cont.-in-part of U.S.
                          Ser. No. 198,361.
                          CODEN: USXXCO
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   2
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.         DATE
     ---------------      ----   --------    --------------------    --------
     US 2006063062         A1    20060323    US 2005-260002          20051026
     US 2003192784         A1    20031016    US 2002-226976          20020823
     US 6974533            B2    20051213
     US 2005271895         A1    20051208    US 2005-198361          20050804
PRIORITY APPLN. INFO.:                       US 2002-372062P      P  20020411
                                             US 2002-226976       A3 20020823
```

	US 2005-138361	A2 20050527
	US 2005-198361	A2 20050804

ABSTRACT:
The invention concerns an improved platinum and method for manufacturing the improved platinum wherein the platinum having a fractal surface coating of platinum, platinum gray, with an increase in surface area of at least 5 times when compared to shiny platinum of the same geometry and also having improved resistance to phys. stress when compared to platinum black having the same surface area. The process of electroplating the surface coating of platinum gray comprising plating at a moderate rate, for example at a rate that is faster than the rate necessary to produce shiny platinum and that is less than the rate necessary to produce platinum black. Platinum gray is applied to manufacture a fuel cell and a catalyst.

L15 ANSWER 3 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	2005:1147880 CAPLUS
DOCUMENT NUMBER:	144:54302
TITLE:	Active area and particle size of Pt particles synthesized from (NH4)2PtCl6 on a carbon support
AUTHOR(S):	Verde, Ysmael; Alonso-Nunez, Gabriel; Miki-Yoshida, Mario; Jose-Yacaman, M.; Ramos, Victor H.; Keer, Arturo
CORPORATE SOURCE:	Electromechanical Engineering, Instituto Tecnologico de Cancun, Quintana Roo, 77500, Mex.
SOURCE:	Catalysis Today (2005), 107-108, 826-830 CODEN: CATTEA; ISSN: 0920-5861
PUBLISHER:	Elsevier B.V.
DOCUMENT TYPE:	Journal
LANGUAGE:	English

ABSTRACT:
NH4+ hexachloro-platinate (AHCP, (NH4)2PtCl6) was used in the synthesis of Pt/C, a catalyst in p exchange membrane fuel cells . AHCP is used because of its low temperature of decomposition and its high aqueous solubility at room temperature HRTEM was used to characterize the size and distribution of the Pt particles obtained from AHCP on the C support. HRTEM showed good dispersion of Pt particles with sizes 2 to 4 nm. The electrochem. properties of the Pt/C ***catalyst*** were determined by ex situ cyclic voltammetry (CV), which showed an electrochem. active area high enough for fuel cell electrodes. The active areas calculated from HRTEM and CV showed particle sizes of similar magnitude.

REFERENCE COUNT:	18	THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	2005:313147 CAPLUS
DOCUMENT NUMBER:	142:376541
TITLE:	Class of electrocatalysts and a gas diffusion electrode based thereon for fuel cells
INVENTOR(S):	Finkelshtain, Gennadi; Katzman, Yuri; Khidekel, Mikhail
PATENT ASSIGNEE(S):	Medis El Ltd., Israel
SOURCE:	U.S., 12 pp. CODEN: USXXAM
DOCUMENT TYPE:	Patent
LANGUAGE:	English
FAMILY ACC. NUM. COUNT:	1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6878664	B1	20050412	US 2001-759229	20010116
PRIORITY APPLN. INFO.:			US 2001-759229	20010116

ABSTRACT:
An electrocatalyst is based on a highly electroconducting polymer and a transition metal, in which transition metal atoms are covalently bonded to heteroatoms of the backbone monomers of the polymer. The covalently bonded transition metal atoms are nucleation sites for catalytically active transition metal particles. The complex is prepared by complexing a highly electroconducting polymer with transition metal coordination ions and then reducing the transition metal ions to neutral atoms. An electrode for a ***fuel*** cell is made by impregnating an elec. conducting sheet with the catalytic complex and drying the impregnated sheet. The scope of the present invention includes such electrodes and the fuel cells that incorporate these electrodes.

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:949968 CAPLUS
DOCUMENT NUMBER: 142:117527
TITLE: Pt/C obtained from carbon with different treatments and (NH4)2PtCl6 as a Pt precursor
AUTHOR(S): Verde, Ysmael; Alonso, Gabriel; Ramos, Victor; Zhang, Hua; Jacobson, Allan J.; Keer, Arturo
CORPORATE SOURCE: Centro de Investigacion en Materiales Avanzados, hihuahua, 31109, Mex.
SOURCE: Applied Catalysis, A: General (2004), 277(1-2), 201-207
CODEN: ACAGE4; ISSN: 0926-860X
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ABSTRACT:
(NH4)2PtCl6 is a good precursor to obtain metallic Pt by thermal decomposition, in addition to being a stable compound easily obtained from a variety of Pt recovery processes, such as fuel cell electrode recycling. Its low decomposition temperature and its relatively high H2O solubility make it a suitable choice to produce Pt on C for p exchange membrane (PEM) fuel cells, however, it was not reported as precursor in the preparation of Pt/C for PEMFCs. Pt/C catalysts were prepared with the new method using com. and synthesized (NH4)2PtCl6 as well as com. Pt(NH3)4Cl2 for comparison. With this method, the production of Pt/C using Pt(NH3)4Cl2 yields lower loadings than with (NH4)2PtCl6. Probably supporting Pt/C using (NH4)2PtCl6, takes place by adsorption on the C surface of the PtCl62- and the Pt(II)Cl3- when it is reduced from Pt(IV). Not only were O complexes at the C surface found to have an effect on Pt loading and on the Pt particle size distribution of the samples prepared but also on the in situ Pt reduction-C oxidation during the reaction.

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 6 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:703838 CAPLUS
DOCUMENT NUMBER: 141:246012
TITLE: Bilayer anodes for improved reformate tolerance of PEM fuel cells
AUTHOR(S): Janssen, G. J. M.; de Heer, M. P.; Papageorgopoulos, D. C.
CORPORATE SOURCE: Fuel Cell Technology, Energy Research Centre of the Netherlands ECN, Petten, 1755 ZG, Neth.
SOURCE: Fuel Cells (Weinheim, Germany) (2004), 4(3), 169-174
CODEN: FUCEFK; ISSN: 1615-6846
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
ABSTRACT:

The concept of bilayer anodes for improved reformate tolerance was analyzed using model calcns. It was found that for a bilayer anode to give good results the catalyst in the layer adjacent to the backing should enable CO oxidation at low potentials and have a relatively low rate of H2 oxidation The ***catalyst*** in the second layer should enable fast H2 oxidation, and have limited CO adsorption. Exptl. results are presented showing that the bilayer anode works especially well with reformate gas. It was found that the water gas shift equilibrium plays an important role in the mechanism for reformate tolerance. The implementation of the bilayer concept seems to be very useful in optimizing both CO and CO2 tolerance of PEMFCs, including at high fuel utilization.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 7 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:702184 CAPLUS
DOCUMENT NUMBER: 141:210125
TITLE: Method of synthesis of noble metal electrocatalysts for fuel cells
INVENTOR(S): Kourtakis, Konstantinos
PATENT ASSIGNEE(S): E.I. Du Pont De Nemours and Company, USA
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2004073090	A2	20040826	WO 2004-US4165		20040210
WO 2004073090	A3	20041125			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI					
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
US 2006073966	A1	20060406	US 2005-539195		20050617
PRIORITY APPLN. INFO.:			US 2003-447351P	P	20030213
			WO 2004-US4165	W	20040210

ABSTRACT:
Noble metal catalysts and methods for producing the catalysts are provided. The catalysts are useful in applications such as ***fuel*** cells. The catalysts exhibit reduced agglomeration of catalyst particles as compared to conventional noble metal catalysts.

L15 ANSWER 8 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:665646 CAPLUS
DOCUMENT NUMBER: 141:352636
TITLE: Novel, size-controlled Pt cluster electrocatalysts for H2 fuel cells
AUTHOR(S): Coker, Eric N.; Steen, William A.; Kelly, Michael J.; Abraham, Ion C.; Miller, James E.
CORPORATE SOURCE: Sandia National Laboratories, Albuquerque, NM, 87185-1349, USA
SOURCE: Preprints of Symposia - American Chemical Society, Division of Fuel Chemistry (2004), 49(2), 681-682
CODEN: PSADFZ; ISSN: 1521-4648
PUBLISHER: American Chemical Society, Division of Fuel Chemistry
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English

ABSTRACT:
Controlled heat treatment of (NH3)4Pt2+ exchanged zeolite X followed by reduction under reducing atmospheric, produces small Pt clusters which can be tuned in size from <1 to >3 nm depending on the heating rate and Pt loading. Electroactive H2 oxidation and O2 reduction catalysts have been prepared from these Pt zeolites through impregnation of a carbonaceous material into the pores of the zeolite, followed by polymerization and carbonization. The zeolite host may be removed by acid or base digestion to yield a Pt/C catalyst with unprecedented control over the size and uniformity of Pt clusters. Electrochem. tests have verified the activity of these catalysts, which compare favorably with state of the art com. materials.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 9 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:433949 CAPLUS
DOCUMENT NUMBER: 140:426126
TITLE: Catalyst for fuel cell and electrode body using the catalyst
INVENTOR(S): Nakajima, Hitoshi; Homma, Itaru
PATENT ASSIGNEE(S): National Institute of Advanced Industrial Science and Technology, Japan
SOURCE: PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004045009	A1	20040527	WO 2003-JP14359	20031112
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2510068	AA	20040527	CA 2003-2510068	20031112
AU 2003280736	A1	20040603	AU 2003-280736	20031112
EP 1569290	A1	20050831	EP 2003-772695	20031112
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2006141334	A1	20060629	US 2006-534722	20060130

PRIORITY APPLN. INFO.:
JP 2002-329484 A 20021113
WO 2003-JP14359 W 20031112

ABSTRACT:
The catalyst is a partial salt of a heteropolyacid comprising a noble metal and/or a transition metal and having a mol. weight of 800-10000. The electrode body has the above catalyst loaded on the surface of a C electrode.

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 10 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:346756 CAPLUS
DOCUMENT NUMBER: 141:245956
TITLE: Pt-Coordinated Polyoxometalate, an Anode Catalyst of Electrochemical Methanol Oxidation
AUTHOR(S): Nakajima, Hitoshi; Honma, Itaru

CORPORATE SOURCE: Energy Electronics Institute, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, 305-8568, Japan
SOURCE: Electrochemical and Solid-State Letters (2004), 7(6), A135-A137
CODEN: ESLEF6; ISSN: 1099-0062
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ABSTRACT:
A type of anode electrocatalyst for methanol oxidation, which was important for their application to direct methanol fuel cells, was synthesized by the reaction of tetrabutylammonium α-undecatungstosilicate and hexachloroplatinic acid in acetone, followed by washing with water. This polyoxometalate coordinated platinum stoichiometrically in the lacunary site of Keggin-type polyanion. This polyoxometalate a showed high methanol oxidation current despite a low Pt ratio and oxide-base catalyst. This kind of electrocatalyst has the advantages of low Pt use, high Pt dispersion, acid tolerance, and well-characterized material as a molecularitic metal oxide.

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 11 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:201028 CAPLUS
DOCUMENT NUMBER: 140:220745
TITLE: Fuel cell catalysts, fuel cell electrodes, and their manufacture
INVENTOR(S): Ume, Takeshi; Nakano, Yoshihiko
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004079438	A2	20040311	JP 2002-241061	20020821
JP 3651799	B2	20050525		
US 2004121219	A1	20040624	US 2003-643974	20030820

PRIORITY APPLN. INFO.: JP 2002-241061 A 20020821
ABSTRACT:
Catalysts having composition formula ATxNu (A = Pt or Pt with ≥1 of Ru, Pd, Au, and Ag; T = Fe, Co, Ni, Sn, Mn, Cr, V, Ti, Mo, Nb, Zr, W, Ta, and/or Hf; x = 0-4; u = 0.005-1) and their manufacture by nitridation of Pt-containing ***catalyst*** precursors at 200-1000° for 0.05-100 h in an atmospheric containing ≥0.05 atm NH3 are claimed. Also claimed are fuel ***cell*** electrodes equipped with a layer containing ferromagnetic ***catalyst*** particles of composition formula RT1uM1vA1w (R = elements same as A; T1 = Fe and/or Co; M1 = Mo, Sn, Ni, W, Ti, Zr, Nb, V, Ta, Hf, Mn, and/or Cr; A1 = N, C, B, and/or P; u = 0.2-4; v = 0-1; w = 0-1) oriented in 1 direction. Such electrodes are manufactured by application of a slurry containing ferromagnetic ***catalyst*** particles, proton conductors, and organic solvents onto a support followed by its drying in magnetic field of ≥0.1 T. The ***catalysts*** have good balance in their stability and activity.

L15 ANSWER 12 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:171244 CAPLUS
DOCUMENT NUMBER: 140:324074
TITLE: Pre-reforming of propane for low-temperature SOFCs
AUTHOR(S): Chen, Fengzhen; Zha, Shaowu; Dong, Jian; Liu, Meilin
CORPORATE SOURCE: School of Materials Science and Engineering, Center

for Innovative Fuel Cell and Battery Technologies, Georgia Institute of Technology, Atlanta, GA, 30332-0245, USA

SOURCE: Solid State Ionics (2004), 166(3-4), 269-273
CODEN: SSIOD3; ISSN: 0167-2738

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ABSTRACT:
Lowering the operation temperature and effectively utilizing practical fuels are two critical issues facing the development of economically competitive solid oxide ***fuel*** cell (SOFC) systems. Although steam reforming or partial oxidation is effective in avoiding carbon deposition of hydrocarbon fuels, it increases the operating cost and reduces the energy efficiency. In this communication, we report our preliminary findings in developing ***catalyst*** (1 weight % Pt dispersed on porous Gd-doped ceria) for pre-reforming of propane with relatively low steam to carbon (S/C) ratio (.apprx.0.5), coupled with direct utilization of the reformate in low-temperature SOFCs. Propane was converted to smaller mols. during pre-reforming, including H2, CH4, CO and CO2. A peak power d. of 247 mW/cm2 was observed when pre-reformed propane was directly fed to an SOFC operated at 600 °C. No carbon deposition was observed in the fuel cell for a continuous operation of 10 h at 600 °C. These results imply that pre-reforming could greatly enhance the performance of low-temperature SOFCs that run on higher hydrocarbon fuels.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 13 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:162431 CAPLUS

DOCUMENT NUMBER: 140:202433

TITLE: Method of producing membrane electrode assemblies for use in proton exchange membrane and direct methanol fuel cells

INVENTOR(S): Hampden-smith, Mark J.; Kodas, Toivo T.; Atanassova, Paolina; Bhatia, Rimple; Miesem, Ross A.; Napolitano, Paul; Rice, Gordon L.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 71 pp., Cont.-in-part of U.S. Ser. No. 265,351.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 23

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004038808	A1	20040226	US 2003-417417	20030416
US 6103393	A	20000815	US 1998-141397	19980827
US 6660680	B1	20031209	US 2000-532917	20000322
US 6753108	B1	20040622	US 2000-589710	20000608
US 2002107140	A1	20020808	US 2001-815380	20010322
US 6967183	B2	20051122		
US 2003148024	A1	20030807	US 2002-265351	20021004
US 2003175411	A1	20030918	US 2002-265070	20021004
US 2003180451	A1	20030925	US 2002-265179	20021004
US 2003161959	A1	20030828	US 2002-286363	20021101
CA 2521079	AA	20041104	CA 2004-2521079	20040416
WO 2004095603	A2	20041104	WO 2004-US11971	20040416
WO 2004095603	A3	20050602		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,

NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
TD, TG

EP 1629549 A2 20060301 EP 2004-759983 20040416
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK

PRIORITY APPLN. INFO.:

US 1998-141397	A2	19980827
US 2000-532917	A2	20000322
US 2000-589710	A2	20000608
US 2001-815380	A2	20010322
US 2001-327620P	P	20011005
US 2002-265351	A2	20021004
US 1997-38258P	P	19970224
US 1997-39450P	P	19970224
US 1998-28029	B2	19980224
US 1998-28277	A2	19980224
US 1998-30057	A2	19980224
US 2001-327621P	P	20011005
US 2001-338797P	P	20011102
US 2003-417417	A	20030416
WO 2004-US11971	W	20040416

ABSTRACT:
The invention concerns compns. and methods for the manufacture of electrodes for ***fuel*** cells. The compns. and methods are particularly useful for the manufacture of anodes and cathodes for proton exchange membrane fuel ***cells*** , particularly direct methanol fuel cells. The methods can utilize direct-write tools to deposit ink compns. and form functional layers of a membrane electrode assembly having controlled properties and enhanced performance.

L15 ANSWER 14 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:86188 CAPLUS
DOCUMENT NUMBER: 140:289847
TITLE: Low temperature CO oxidation in hydrogen rich streams on Pt-SnO2/Al2O3 catalyst using Taguchi method
AUTHOR(S): Ozdemir, Cem; Akin, Ayse Nilgun; Yildirim, Ramazan
CORPORATE SOURCE: Department of Chemical Engineering, Bogazici University, Istanbul, 34342, Turk.
SOURCE: Applied Catalysis, A: General (2004), 258(2), 145-152
CODEN: ACAGE4; ISSN: 0926-860X
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

ABSTRACT:
Taguchi method of exptl. design was used to optimize the catalyst preparation conditions of the sol-gel method to design a Pt-SnO2/Al2O3 ***catalyst*** for the low temperature oxidation of carbon monoxide in hydrogen rich stream. HNO3, H2O, aluminum nitrate concns. and the stirring rate in sol-gel process were optimized to obtain the maximum CO conversion using Taguchi method. It was found and exptl. verified that lower levels of HNO3 and H2O concns. and higher levels of aluminum nitrate concentration and stirring rate maximized CO conversion without inversely affecting selectivity. The effects of reaction conditions such as temperature, time-onstream, O2 concentration, CO concentration and space velocity on CO conversion and selectivity were also studied in a microreactor flow system using the optimum catalyst obtained. A 100% CO conversion was obtained with reasonable selectivity at a temperature of 100°, CO concn. of 0.5-1.1%, O2/CO ratio of .apprx.2 and space velocity of 24,000 cm3/(g h).

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 15 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:1007566 CAPLUS
DOCUMENT NUMBER: 140:44262
TITLE: Ceria-based mixed-metal oxide structure, including method of making and use
INVENTOR(S): Vanderspurt, Thomas Henry; Wijzen, Fabienne; Tang, Xia; Leffler, Miriam P.; Willigan, Rhonda R.; Newman, Caroline A.; Radhakrishnan, Rakesh; Feng, Fangxia; Laube, Bruce Leon; Dardas, Zissis; Opalka, Susanne M.; She, Ying
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 35 pp., Cont.-in-part of U.S. Pat. Appl. 2003 186,805.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003235526	A1	20031225	US 2003-402808	20030328
US 2003186805	A1	20031002	US 2002-109161	20020328
PRIORITY APPLN. INFO.:			US 2002-109161 A2	20020328

ABSTRACT:
A homogeneous ceria-based mixed-metal oxide, useful as a catalyst support, a co-catalyst and/or a getter has a relatively large surface area per weight, typically exceeding 150 m 2 /g, a structure of nanocrystallites having diams. of <4 nm, and including pores larger than the nanocrystallites and having diams. in the range of 4 to .apprx.9 nm. The ratio of pore vols., V P , to skeletal structure vols., V S , is typically less than .apprx.2.5, and the surface area per unit volume of the oxide material is greater than 320 m 2 /cm 3 , for low internal mass transfer resistance and large effective surface area for reaction activity. The mixed metal oxide is ceria-based, includes Zr and or Hf, and is made by a novel co-precipitation process. A highly dispersed ***catalyst*** metal, typically a noble metal such as Pt, may be loaded on to the mixed metal oxide support from a catalyst metal-containing solution following a selected acid surface treatment of the oxide support. Appropriate ratioing of the Ce and other metal constituents of the oxide support contribute to it retaining in a cubic phase and enhancing catalytic performance. Rhenium is preferably further loaded on to the mixed-metal oxide support and passivated, to increase the activity of the catalyst. The metal-loaded mixed-metal oxide catalyst is applied particularly in water gas shift reactions as associated with fuel processing systems, as for ***fuel*** cells.

L15 ANSWER 16 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:961163 CAPLUS
DOCUMENT NUMBER: 140:18404
TITLE: Methods for producing electrocatalyst powders for fabrication of energy devices
INVENTOR(S): Hampden-Smith, Mark J.; Kodas, Toivo T.; Atanassov, Plamen; Atanassova, Paolina; Kunze, Klaus; Napolitano, Paul; Dericotte, David
PATENT ASSIGNEE(S): Superior MicroPowders, LLC, USA
SOURCE: U.S., 83 pp., Cont.-in-part of U.S. 6,103,393.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 23
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6660680	B1	20031209	US 2000-532917	20000322
AU 9865363	A1	19980909	AU 1998-65363	19980224
EP 985007	A1	20000315	EP 1998-911404	19980224
EP 985007	B1	20060517		
R: DE, FR, GB, IT, NL				
US 6165247	A	20001226	US 1998-28034	19980224
US 6277169	B1	20010821	US 1998-28277	19980224
JP 2001513828	T2	20010904	JP 1998-536974	19980224
US 6602439	B1	20030805	US 1998-28628	19980224
EP 1386708	A2	20040204	EP 2003-19158	19980224
R: DE, FR, GB, IT, NL				
US 6103393	A	20000815	US 1998-141397	19980827
US 6679937	B1	20040120	US 2000-586151	20000602
US 6753108	B1	20040622	US 2000-589710	20000608
US 6635348	B1	20031021	US 2000-668947	20000922
US 6689186	B1	20040210	US 2000-668805	20000922
US 6830823	B1	20041214	US 2000-698363	20001027
US 2002003225	A1	20020110	US 2001-753026	20010102
US 6730245	B2	20040504		
US 2001042853	A1	20011122	US 2001-757391	20010108
US 6555022	B2	20030429		
CA 2402552	AA	20010927	CA 2001-2402552	20010322
WO 2001070392	A1	20010927	WO 2001-US9367	20010322
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002107140	A1	20020808	US 2001-815380	20010322
US 6967183	B2	20051122		
EP 1268054	A1	20030102	EP 2001-920697	20010322
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003527735	T2	20030916	JP 2001-568577	20010322
US 2002168570	A1	20021114	US 2001-927888	20010810
US 6770226	B2	20040803		
US 2005262966	A1	20051201	US 2001-991270	20011109
US 2002160685	A1	20021031	US 2001-32298	20011221
US 6866929	B2	20050315		
US 2003013606	A1	20030116	US 2002-210600	20020801
US 7066976	B2	20060627		
US 2003144134	A1	20030731	US 2002-210816	20020801
US 2003181321	A1	20030925	US 2002-210597	20020801
US 6911412	B2	20050628		
US 2003049517	A1	20030313	US 2002-213147	20020805
US 2003054218	A1	20030320	US 2002-212992	20020805
US 6991754	B2	20060131		
US 2003064265	A1	20030403	US 2002-213001	20020805
US 2003118884	A1	20030626	US 2002-213116	20020805
US 2003130114	A1	20030710	US 2002-212991	20020805
US 2003198849	A1	20031023	US 2002-279773	20021024
US 2003161959	A1	20030828	US 2002-286363	20021101
US 2004038808	A1	20040226	US 2003-417417	20030416
US 2004080256	A1	20040429	US 2003-424994	20030428
US 7005085	B2	20060228		
US 2005079349	A1	20050414	US 2003-653722	20030902
US 2004195548	A1	20041007	US 2003-705735	20031110
US 7022261	B2	20060404		
US 2004171480	A1	20040902	US 2003-731740	20031209
US 2004139820	A1	20040722	US 2004-758866	20040116

US 2004231758	A1	20041125	US 2004-774791	20040209
US 7004994	B2	20060228		
US 2004203241	A1	20041014	US 2004-838053	20040503
US 2004265615	A1	20041230	US 2004-893715	20040716
US 2005151115	A1	20050714	US 2004-909928	20040802
US 2005061107	A1	20050324	US 2004-949601	20040924
US 2005100666	A1	20050512	US 2004-904257	20041101
US 2005081998	A1	20050421	US 2004-983541	20041108
US 7037451	B2	20060502		
US 2005116369	A1	20050602	US 2004-904558	20041116
US 2005069640	A1	20050331	US 2004-904843	20041201
US 2005147752	A1	20050707	US 2004-904909	20041203
PRIORITY APPLN. INFO.:			US 1997-38258P	P 19970224
			US 1997-39450P	P 19970224
			US 1998-28029	B2 19980224
			US 1998-28277	A2 19980224
			US 1998-30057	A2 19980224
			US 1998-141397	A2 19980827
			US 1997-38262P	P 19970224
			US 1997-38263P	P 19970224
			EP 1998-910041	A3 19980224
			US 1998-28603	A3 19980224
			US 1998-28628	A3 19980224
			US 1998-28678	A3 19980224
			US 1998-28901	B3 19980224
			US 1998-30051	A3 19980224
			US 1998-30060	A3 19980224
			WO 1998-US3566	W 19980224
			US 1998-141387	B3 19980827
			US 1998-141394	A3 19980827
			US 2000-532917	A2 20000322
			US 2000-586151	A3 20000602
			US 2000-589710	A 20000608
			US 2000-668805	A3 20000922
			US 2000-668947	A1 20000922
			US 2000-698363	A3 20001027
			US 2000-718640	A3 20001122
			US 2001-753026	A3 20010102
			US 2001-757391	A3 20010108
			US 2001-815380	A1 20010322
			WO 2001-US9367	W 20010322
			US 2001-927888	A3 20010810
			US 2001-327620P	P 20011005
			US 2001-338797P	P 20011102
			US 2001-32298	A3 20011221
			US 2002-265351	A2 20021004
			US 2003-653722	A1 20030902
			US 2004-774791	A1 20040209
			US 2004-838053	A1 20040503

ABSTRACT:
The invention concerns electrocatalyst powders and methods for producing electrocatalyst powders, such as carbon composite electrocatalyst powders. The powders have a well-controlled microstructure and morphol. The method includes forming the particles from an aerosol of precursors by heating the aerosol to a relatively low temperature, such as not greater than about 400°.

REFERENCE COUNT: 75 THERE ARE 75 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 17 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:951356 CAPLUS
DOCUMENT NUMBER: 139:398064
TITLE: Sulfonated conducting polymer-grafted carbon material for fuel cell applications
INVENTOR(S): Srinivas, Bollepalli
PATENT ASSIGNEE(S): Columbian Chemicals Company, USA

SOURCE: PCT Int. Appl., 56 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003100884	A2	20031204	WO 2003-US16320	20030523
WO 2003100884	A3	20040506		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2486790	AA	20031204	CA 2003-2486790	20030523
AU 2003233657	A1	20031212	AU 2003-233657	20030523
EP 1509930	A2	20050302	EP 2003-729097	20030523
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1656572	A	20050817	CN 2003-811774	20030523
JP 2005527687	T2	20050915	JP 2004-508430	20030523
PRIORITY APPLN. INFO.:			US 2002-382665P P	20020523
			WO 2003-US16320 W	20030523

ABSTRACT:
The invention concerns a composition comprising particulate carbonaceous material and a sulfonated conducting polymer containing hetero atoms. The composition can further comprise a metal. Devices comprising the composition can be constructed including supported electrocatalysts, membrane electrode assemblies, and ***fuel*** cells. A method for preparing the composition comprises oxidatively polymerizing a monomer of a conducting polymer containing hetero atoms in the presence of a carbonaceous material and sulfonating the polymer or the monomer. The method grafts the sulfonated conducting polymer to the carbonaceous material. The method can further comprise metalizing the polymer-grafted carbonaceous material.

L15 ANSWER 18 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:844839 CAPLUS
DOCUMENT NUMBER: 140:296330
TITLE: Aqueous solution reaction to synthesize ammonium hexachloroplatinate and its crystallographic and thermogravimetric characterization
AUTHOR(S): Verde-Gomez, Ysmael; Alonso-Nunez, Gabriel; Cervantes, Francisco; Keer, Arturo
CORPORATE SOURCE: Centro de Investigacion en Materiales Avanzados S.C., Complejo Industrial Chihuahua, Chihuahua, 31109, Mex.
SOURCE: Materials Letters (2003), 57(30), 4667-4672
CODEN: MLETDJ; ISSN: 0167-577X
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ABSTRACT:
Ammonium hexachloroplatinate (Pt(NH4)2Cl6) was proven to be a good precursor to obtain metallic Pt by thermal decomposition, in addition to being a stable compound easily obtained from a variety of Pt recuperation processes. This work was aimed to develop a simple way to synthesize Pt(NH4)2Cl6. The crystallog. characterization by powder and single crystal XRD is reported, along with a simulation of the XRD patterns performed with the software Cerius2. A TGA allowed insight into the thermal decomposition process, which was confirmed to take

place in two steps, between 175 and 400°. This low decomposition temperature makes Pt(NH4)2Cl6 an ideal catalyst precursor to obtain Pt/C for polymer electrolyte membrane fuel cell (PEMFC) electrode fabrication.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 19 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:777353 CAPLUS
DOCUMENT NUMBER: 139:278603
TITLE: Ceria-based mixed-metal oxide and its use in catalysts
INVENTOR(S): Vanderspurt, Thomas Henry; Wijzen, Fabienne; Tang, Xia; Leffler, Miriam P.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003186805	A1	20031002	US 2002-109161	20020328
WO 2003082740	A1	20031009	WO 2003-US5459	20030225
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003213243	A1	20031013	AU 2003-213243	20030225
WO 2003082741	A1	20031009	WO 2003-US9588	20030328
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003228394	A1	20031013	AU 2003-228394	20030328
US 2003235526	A1	20031225	US 2003-402808	20030328
JP 2005521617	T2	20050721	JP 2003-580216	20030328
PRIORITY APPLN. INFO.:			US 2002-109161 A	20020328
			WO 2003-US5459 W	20030225
			WO 2003-US9588 W	20030328

ABSTRACT:
A homogeneous, nanocryst., mixed metal oxide of cerium and at least one other metal, such as Zr, Hf, Nb, Ta, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Mo, W, Re, Rh, Sb, Bi, Ti, V, Mn, Co, Cu, Ga, Ca, Sr or Ba, has a surface area of ≥ 150 m2/g, an average crystallite size of < 4 nm and it is agglomerated to form a skeletal structure with pores having average pore diams. of > 4 nm and a surface area of > 320 m2/cm3. The mixed metal oxide is made by co-precipitating a dilute metal salt solution containing the resp. metals, which may include Zr,
Hf, and/or other metals in addition to Ce in the presence of urea, replacing water in the co-precipitate with a water-miscible low surface-tension solvent, and

relatively quickly drying and calcining the co-precipitate at 350-500°. The water miscible solvent can be dried 2-propanol, acetone, Me Et ketone, or 1-propanol. A highly dispersive catalyst metal, such as Pt, may be loaded on the mixed metal oxide support from a catalyst-containing solution following a selected acid surface treatment of the oxide support. The acid can be an amino acid, hydroxydicarboxylic acid, hydroxypolycarboxylic acid, or keto polycarboxylic acid. The mixed metal oxide can be applied as catalyst support, co-catalyst or getter in various reactions, especially water gas shift and/or preferential oxidation reactions associated with fuel processing systems, such as fuel cells.

L15 ANSWER 20 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:312665 CAPLUS
DOCUMENT NUMBER: 138:306834
TITLE: Preparation of supported nano-sized catalyst particles via a polyol process for methanol reforming
INVENTOR(S): Laine, Richard M.; Sellinger, Alan
PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan
SOURCE: U.S., 19 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6551960	B1	20030422	US 2000-596764	20000619

PRIORITY APPLN. INFO.: US 2000-596764 20000619
ABSTRACT:
High activity, supported, nanosized metallic catalysts for methanol reformation and methods of fabricating such catalysts are disclosed. In one embodiment, soluble metal species are dissolved in a polyhydroxylic alc. (polyol) solution Platinum and ruthenium are preferred metal species. Other soluble metal species can be used, such as soluble Group 6, 7 and 8 metals. The polyol solvent is preferably a viscous alc., such as a diol, triol, or tetrol, to minimize particle diffusion and inhibit particle growth. The polyol solution is heated to reduce the metal(s) to a zero valent state. Typically, the heating temperature will range from 20° to 300°, and the heating period will range from 1 min to 5 h. A high surface area conductive support material can be mixed with the polyol solution to form the supported catalysts in situ. Activated carbon, metals, and metal oxides, having a surface area from 20 to 2000 m2/g, are typical support materials.

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:671849 CAPLUS
DOCUMENT NUMBER: 137:191264
TITLE: Electrocatalytic compound
INVENTOR(S): Arndt, Joerg; Auer, Emmanuel; Bergemann, Klaus; Ruth, Karsten; Vogel, Karl
PATENT ASSIGNEE(S): OMG A.-G. & Co. K.-G., Germany
SOURCE: Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1236508	A1	20020904	EP 2001-104613	20010223
EP 1236508	B1	20051116		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

AT 309861 E 20051215 AT 2001-104613 20010223

PRIORITY APPLN. INFO.: EP 2001-104613 A 20010223

ABSTRACT:
The invention relates to a novel electrocatalytic compound comprising an aggregate comprising a carbon phase and a precious metal-containing species phase. The electrocatalytic compound is used as electrocatalyst for fuel ***cells*** , particularly low temperature fuel cells, i.e. PAFC, PEMFC and DMFC.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:595486 CAPLUS

DOCUMENT NUMBER: 137:143073

TITLE: Methods for producing electrocatalyst powders for the fabrication of energy devices

INVENTOR(S): Hampden-Smith, Mark J.; Kodas, Toivo T.; Atanassov, Plamen; Kunze, Klaus; Napolitanoof, Paul; Bhatia, Rimple; Dericotte, David E.; Atanassova, Paolina

PATENT ASSIGNEE(S): Cabot Corporation, USA

SOURCE: U.S. Pat. Appl. Publ., 115 pp., Cont.-in-part of U.S. Ser. No. 532,917.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 23

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002107140	A1	20020808	US 2001-815380	20010322
US 6967183	B2	20051122		
US 6103393	A	20000815	US 1998-141397	19980827
US 6660680	B1	20031209	US 2000-532917	20000322
CA 2412426	AA	20011213	CA 2001-2412426	20010608
WO 2001093999	A2	20011213	WO 2001-US18565	20010608
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2001069765	A5	20011217	AU 2001-69765	20010608
EP 1309396	A2	20030514	EP 2001-948297	20010608
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004507341	T2	20040311	JP 2002-501565	20010608
US 2003064265	A1	20030403	US 2002-213001	20020805
US 2003118884	A1	20030626	US 2002-213116	20020805
US 2003130114	A1	20030710	US 2002-212991	20020805
US 2003198849	A1	20031023	US 2002-279773	20021024
US 2003161959	A1	20030828	US 2002-286363	20021101
US 2004038808	A1	20040226	US 2003-417417	20030416
PRIORITY APPLN. INFO.:			US 1998-141397	A2 19980827
			US 2000-532917	A2 20000322
			US 1997-38258P	P 19970224
			US 1997-39450P	P 19970224
			US 1998-28029	B2 19980224
			US 1998-28277	A2 19980224
			US 1998-30057	A2 19980224

US 2000-589710	A	20000608
US 2001-815380	A	20010322
WO 2001-US18565	W	20010608
US 2001-327620P	P	20011005
US 2001-338797P	P	20011102
US 2002-265351	A2	20021004

ABSTRACT:
Electrocatalyst powders and methods for producing electrocatalyst powders, such as carbon composite electrocatalyst powders are disclosed. The powders have a well-controlled microstructure and morphol. The method includes forming the particles from an aerosol of precursors by heating the aerosol to a relatively low temperature, such as not greater than about 400°.

REFERENCE COUNT: 74 THERE ARE 74 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 23 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:505055 CAPLUS
DOCUMENT NUMBER: 137:49738
TITLE: Electrodeposition of catalyst particles in membrane electrode assemblies of fuel cells
INVENTOR(S): Schmitz, Heinz; Divisek, Jiri
PATENT ASSIGNEE(S): Forschungszentrum Juelich G.m.b.H., Germany
SOURCE: PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002052663	A2	20020704	WO 2001-DE4655	20011207
WO 2002052663	A3	20030904		
W: CA, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
DE 10065074	A1	20020704	DE 2000-10065074	20001223
EP 1368844	A2	20031210	EP 2001-271963	20011207
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				

PRIORITY APPLN. INFO.:	DE 2000-10065074	A	20001223
	WO 2001-DE4655	W	20011207

ABSTRACT:
The invention concerns a procedure for the deposition of a catalyst on the membrane electrode of a membrane electrode assembly (MEA) of a ***fuel*** cell. The method is presented with the electrochem. deposition of a noble metal catalyst from a precursor layer, whereby the soluble catalyst salt-containing precursor layer is placed between the the membrane and the electrode of the MEA. The electrochem. deposition is carried out in situ in the fuel cells by feeding with d.c. before operating. The anode-sided and the cathode-sided deposition of the ***catalyst*** is carried out simultaneously. Therefore carbon particles are mixed with the Nafion solution, the mixture is sprayed on a foil, then dried and then the layer is pressed on a Nafion membrane, furthermore the residual carbon layers were brushed with a mixture of H2PtCl6 and Nafion. The Nafion membrane, which is coated with the Pt salt on both sides is pressed between 2 backing layers. This method saves expensive catalyst material and enables the optimal distribution of the deposited catalyst particles at the polymer electrolyte of particularly direct methanol fuel ***cells.***

L15 ANSWER 24 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:487890 CAPLUS

DOCUMENT NUMBER: 137:65720
TITLE: Method for coating both sides of a membrane-electrode assembly with a catalyst for fuel cell
INVENTOR(S): Wippermann, Klaus; Divisek, Jiri
PATENT ASSIGNEE(S): Forschungszentrum Juelich Gmbh, Germany
SOURCE: PCT Int. Appl., 17 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002050932	A2	20020627	WO 2001-DE4654	20011207
WO 2002050932	A3	20031211		
W: CA, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
DE 10063741	A1	20020711	DE 2000-10063741	20001221
EP 1391001	A2	20040225	EP 2001-271666	20011207
EP 1391001	B1	20040915		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
AT 276588	E	20041015	AT 2001-271666	20011207
PRIORITY APPLN. INFO.:			DE 2000-10063741 A	20001221
			WO 2001-DE4654 W	20011207

ABSTRACT:
The invention relates to a single-step method for coating both sides of a membrane-electrode assembly with a catalyst. According to the inventive method, two precursor layers are contacted with a membrane and the ***catalyst*** is alternately electrochem. deposited on the electrodes. Specific adsorption layers are produced in a controlled manner during the method on the counter-electrode by controlling the pulse width or by adding agents that form an adsorbate, thereby regularly preventing the membrane-electrode assembly from damages, such as for example due to carbon consumption.

L15 ANSWER 25 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:332126 CAPLUS
DOCUMENT NUMBER: 136:360160
TITLE: Method for the production of form-selective catalysts and their use
INVENTOR(S): Kuehnle, Adolf; Duda, Mark; Seelbach, Karsten; Hasenzahl, Steffen; Tanger, Uwe; Jost, Carsten; Klemm, Elias; Reitzmann, Andreas
PATENT ASSIGNEE(S): Degussa AG, Germany
SOURCE: PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002034672	A1	20020502	WO 2001-EP11806	20011012
W: BR, CN, IN, JP, KR, RU, SG, US, ZA				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
DE 10139316	A1	20020508	DE 2001-10139316	20010809
EP 1334067	A1	20030813	EP 2001-988696	20011012
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				

ZA 2003003238	A	20040312	ZA 2003-3238		20030425
US 2004063568	A1	20040401	US 2003-399781		20031023
PRIORITY APPLN. INFO.:			DE 2000-10053085	A	20001026
			DE 2001-10139316	A	20010809
			WO 2001-EP11806	W	20011012

ABSTRACT:
The invention relates to a method for the production of zeolite catalysts , containing transition group metals, that remain stable through hydrothermal synthesis and subsequent calcification. The transition group metal that is used is in form of carbonyl, isonitrile or cyano complexes in hydrothermal syntheses. The produced catalysts can be used as catalysts for oxidation of organic compds. A further application is as a denitrification ***catalyst*** in power stations and in exhaust systems of combustion engines, e.g. in motor vehicles or from nitric plants for removal of nitrogen oxides (NOx). The invention provides a zeolite catalyst that is thermally stable, contains catalytically effective metals, metal complexes and/or metal oxides according to a "ship-in-a-bottle" complex and provides improved oxidation of organic substrates.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 26 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:238083 CAPLUS
DOCUMENT NUMBER: 136:265797
TITLE: Manufacture of electrode catalyst for solid polymer electrolyte fuel cell
INVENTOR(S): Nojima, Shigeru; Yasutake, Akinobu; Watanabe, Satoru; Yonemura, Masanao
PATENT ASSIGNEE(S): Mitsubishi Heavy Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002093423	A2	20020329	JP 2000-277419	20000913
PRIORITY APPLN. INFO.:			JP 2000-277419	20000913

ABSTRACT:
The catalyst is prepared by dissolving a cation Pt source salt and an anion Ru source salt, or a cation Ru source salt and an anion Pt source salt, in water; preparing an aqueous solution containing a dissolved organic acid reducing agent and a dispersed powdered catalyst support; and adding the mixed salt solution to the aqueous solution to form a colloidal alloy and to load the alloy on the support. The salts are preferably Pt(NH3)4(NO3)2 and H2RuCl6 or (NH4)2PtCl6 and Ru(NH3)6Cl3.

L15 ANSWER 27 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:123429 CAPLUS
DOCUMENT NUMBER: 136:186631
TITLE: Method for coating a membrane electrode assembly with a catalyst and device for carrying out the method
INVENTOR(S): Hempelmann, Rolf; Loeffler, Marc-Simon; Schmitz, Heinz; Natter, Harald; Divisek, Jiri
PATENT ASSIGNEE(S): Forschungszentrum Juelich G.m.b.H., Germany
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002013301	A1	20020214	WO 2001-DE2830	20010721
W: CA, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
DE 10038862	A1	20020221	DE 2000-10038862	20000804
DE 10038862	C2	20030410		
CA 2417906	AA	20030203	CA 2001-2417906	20010721
EP 1307939	A1	20030507	EP 2001-956381	20010721
EP 1307939	B1	20040421		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
AT 265092	E	20040515	AT 2001-956381	20010721
US 2004035705	A1	20040226	US 2003-343370	20030130
PRIORITY APPLN. INFO.:			DE 2000-10038862 A	20000804
			WO 2001-DE2830 W	20010721

ABSTRACT:
The invention concerns a procedure for coating a membrane electrode assembly of a fuel cell with a catalyst as well as a device suitable for carrying out this procedure. A method is presented for electrochem. depositing a noble metal catalyst with a precursor layer from a membrane and where catalytic material is present in the form of salts that are soluble in the membrane material. During deposition the membrane is surrounded by an atmospheric containing water vapors, while ensuring the stability and ionic conductibility of the membrane. This process avoids the removal of the soluble catalytic salt from the precursor layer. The method can be carried out in a simple device comprising of a sealable tempered vessel, a mounting for the intake of a membrane precursor unit, a gas supply and elec. contacts. Th process is cost efficient and does not require galvanic dips, it recycles expensive catalytic material and does not require the customary rinsing steps.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 28 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:87164 CAPLUS
DOCUMENT NUMBER: 136:137409
TITLE: Preparation of noble metal nanoparticles suitable for electrode assemblies in low-temperature fuel cells
INVENTOR(S): Starz, Karl-Anton; Goia, Dan V.; Koehler, Joachim; Baenisch, Volker
PATENT ASSIGNEE(S): Omg A.-G. & Co. K.-G., Germany
SOURCE: Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1175948	A2	20020130	EP 2001-117494	20010720
EP 1175948	A3	20060419		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
DE 10037071	A1	20020221	DE 2000-10037071	20000729
US 2002034675	A1	20020321	US 2001-910959	20010724
CA 2354239	AA	20020129	CA 2001-2354239	20010727
BR 2001003322	A	20020326	BR 2001-3322	20010730
JP 2002146235	A2	20020522	JP 2001-230394	20010730
PRIORITY APPLN. INFO.:			DE 2000-10037071 A	20000729

ABSTRACT:

The present invention provides nanoparticles which contain noble metals alone or noble metals in combination with base metals. The nanoparticles are characterized in that they are embedded in an aqueous solution of a temporary stabilizer based on a polysaccharide. The temporary stabilizer can be removed by pyrolysis at ≤250° or by breaking the glycosidic bonds in the presence of acids or alkalies.

L15 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:923194 CAPLUS
DOCUMENT NUMBER: 136:55971
TITLE: Catalyst for the selective oxidation of CO in H2-containing gas
INVENTOR(S): Stengel, Thomas; Plog, Carsten; Loeffler, Erwin; Eriksson, Jonas
PATENT ASSIGNEE(S): Dornier G.m.b.H., Germany
SOURCE: Ger. Offen., 6 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10027220	A1	20011220	DE 2000-10027220	20000531

PRIORITY APPLN. INFO.: DE 2000-10027220 20000531
ABSTRACT:
The invention concerns a catalyst to the catalytic removal of CO in a H2-containing design mixture by selective oxidation, comprising a platinum-containing active material on a substrate. In accordance with the invention the substrate is a mixed crystal with a boehmite structure or a hydraulic valley CIT structure, consisting of at least two oxides.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 30 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:903988 CAPLUS
DOCUMENT NUMBER: 136:40187
TITLE: Synthesis of electrocatalyst powders containing conducting fluoropolymers for use in batteries and fuel cells
INVENTOR(S): Kodas, Toivo T.; Hampden-Smith, Mark J.; Atanassova, Paolina; Atanassov, Plamen; Kunze, Klaus; Napolitano, Paul; Dericotte, David; Bhatia, Rimple
PATENT ASSIGNEE(S): Superior Micropowders Llc, USA
SOURCE: PCT Int. Appl., 154 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 23
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001093999	A2	20011213	WO 2001-US18565	20010608

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,

BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6753108	B1	20040622	US 2000-589710	20000608
US 2002107140	A1	20020808	US 2001-815380	20010322
US 6967183	B2	20051122		
CA 2412426	AA	20011213	CA 2001-2412426	20010608
AU 2001069765	A5	20011217	AU 2001-69765	20010608
EP 1309396	A2	20030514	EP 2001-948297	20010608
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004507341	T2	20040311	JP 2002-501565	20010608
US 2003161959	A1	20030828	US 2002-286363	20021101
US 2004072683	A1	20040415	US 2003-297528	20031003
PRIORITY APPLN. INFO.:			US 2000-589710 A	20000608
			US 2001-815380 A	20010322
			US 1998-28029 B2	19980224
			US 1998-28277 A2	19980224
			US 1998-30057 A2	19980224
			US 1998-141397 A2	19980827
			US 2000-532917 A2	20000322
			WO 2001-US18565 W	20010608
			US 2001-338797P P	20011102

ABSTRACT:
Powdered metal oxide or metal electrocatalysts, especially for use in proton-exchange-membrane fuel cells, are prepared by atomizing a metal precursor-containing liquid into precursor droplets followed by heating the droplets to .ltorsim.700° (preferably .ltorsim.400°) to form the electrocatalytic particles, which are then collected. Atomization is typically carried out in an ultrasonic aerosol generator. The electrocatalysts can be unsupported or supported (preferably on carbon or carbon black, with surface area .gtorsim.400 m2/g); the catalyst particles have a bimodal size distribution with a volume average particle size of 1-10 μ, with an average size for the active phase of .ltorsim.4 nm. The active powders can also contain a proton-conducting organic polymer, such as a perfluorocarbon polymer containing sulfate and phosphate functional groups. Such electrocatalysts are useful for use in energy devices, such as batteries or ***fuel*** cells (especially proton-exchange-membrane, direct MeOH, alkaline, and phosphoric acid fuel cells).

L15 ANSWER 31 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	2001:713221 CAPLUS
DOCUMENT NUMBER:	135:232278
TITLE:	Electrocatalyst powders, methods for producing powders and devices fabricated from same
INVENTOR(S):	Hampden-Smith, Mark J.; Kodas, Toivo T.; Antanassov, Plamen; Kunze, Klaus; Napolitano, Paul; Bhatia, Rimple; Dericotte, David; Atanassova, Paolina
PATENT ASSIGNEE(S):	Superior Micropowders LLC, USA
SOURCE:	PCT Int. Appl., 199 pp. CODEN: PIXXD2
DOCUMENT TYPE:	Patent
LANGUAGE:	English
FAMILY ACC. NUM. COUNT:	23

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001070392	A1	20010927	WO 2001-US9367	20010322
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,				

BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6660680	B1	20031209	US 2000-532917	20000322
US 6753108	B1	20040622	US 2000-589710	20000608
CA 2402552	AA	20010927	CA 2001-2402552	20010322
EP 1268054	A1	20030102	EP 2001-920697	20010322
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003527735	T2	20030916	JP 2001-568577	20010322
US 2003161959	A1	20030828	US 2002-286363	20021101
PRIORITY APPLN. INFO.:			US 2000-532917 A	20000322
			US 2000-589710 A	20000608
			US 1997-38258P P	19970224
			US 1997-39450P P	19970224
			US 1998-28029 B2	19980224
			US 1998-28277 A2	19980224
			US 1998-30057 A2	19980224
			US 1998-141397 A2	19980827
			WO 2001-US9367 W	20010322
			US 2001-338797P P	20011102

ABSTRACT:
Electrocatalyst powders and methods for producing electrocatalyst powders, such as carbon composite electrocatalyst powders. The powders have a well-controlled microstructure and morphol. The method includes forming the particles from an aerosol of precursors by heating the aerosol to a relatively low temperature, such as not greater than about 400°.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 32 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:636765 CAPLUS
DOCUMENT NUMBER: 125:252927
TITLE: Selective removal of carbon monoxide in manufacture of hydrogen for fuel cells
INVENTOR(S): Akimoto, Yasushi; Fujimoto, Tatsuya
PATENT ASSIGNEE(S): Idemitsu Kosan Co, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08217406	A2	19960827	JP 1995-19587	19950207
PRIORITY APPLN. INFO.:			JP 1995-19587	19950207

ABSTRACT:
The process comprises removal of CO from mixed gases containing H and CO2, which are manufactured by reforming H-producing fuels, by selective oxidation with O-containing gases using cationic Pt-loaded catalysts. The catalysts may contain [Pt(NH3)4]2+ which may be manufactured from solns. containing anion-forming Pt compds. and a substance forming cation complexes. The anion-forming Pt compds. may be K2PtCl4, (NH4)2[PtCl4], H2[PtCl6], H2[PtCl4], or Pt(C5H7O2)2. The substance forming cation complexes may be NH3 or aqueous NH3. The supports may be Al2O3, TiO2, SiO2, or ZrO2. A process for the manufacture of H-containing gases for ***fuel*** cells from reformed gases by removal of CO with the above process is also claimed.

L15 ANSWER 33 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1993:412047 CAPLUS
DOCUMENT NUMBER: 119:12047
TITLE: Fuel-cell electrode
INVENTOR(S): Tsou, Yu Min; Eisman, Glenn A.; Door, Robert D.
PATENT ASSIGNEE(S): Dow Chemical Co., USA

SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5171644	A	19921215	US 1991-638940	19910109
US 5314760	A	19940524	US 1992-937915	19920828

PRIORITY APPLN. INFO.: US 1991-638940 A2 19910109
ABSTRACT:
A supported transition or noble metal catalyst useful in the preparation of a fuel-cell electrode comprises a support material and a residue remaining after heating polymer selected from the poly(4-vinyl(pyridine), poly(2-vinylpyridine), poly(ethyleneimine), and poly(4-aminostyrene) at .apprx.500-700° in an inert atmospheric The transition metal is selected from Ni, Mo, Cr, Mn, W, Ti, Zn, Cu, Cd, V, and especially Fe and Co. The noble metal is selected from Pd, Os, Ir, and sep. Pt or Ru. The electrode is prepared by treating the support material (metal, C, or graphite) with a solvent solution of a transition or noble metal salt and the polymer, removing the solvent, and heating in an inert atmospheric at .apprx.500-700°. The electrode comprises a current collector combined with a layer of a mixture of a binder and the supported catalyst. The binder is a fluorinated hydrocarbon polymer, PTFE.

L15 ANSWER 34 OF 34 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1988:593727 CAPLUS
DOCUMENT NUMBER: 109:193727
TITLE: Preparation of platinum cluster-impregnated electrodes and their methanol electrooxidation characteristics
AUTHOR(S): Machida, Kenichi; Fukuoka, Atsusi; Ichikawa, Masaru; Enyo, Michio
CORPORATE SOURCE: Res. Inst. Catal., Hokkaido Univ., Sapporo, 060, Japan
SOURCE: Nippon Kagaku Kaishi (1988), (8), 1426-32
CODEN: NKAKB8; ISSN: 0369-4577
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
ABSTRACT:
Pt and Ru cluster-supported electrodes were prepared from [Pt3(CO)6]n2M (n = 3,5), [PtCl2(SnCl3)2]2M, [Pt3Sn3Cl20]4M, [Pt3Fe3(CO)15]2M, and [HRu3(CO)11]M (M = Na+, NMe4+, NEt4+, NMe3(CH2Ph)+) as precursors, by an ion-exchange technique on an anion type solid polymer electrolyte (SPE) membrane or graphite which was surface-modified with a quaternary ammonium salt-silane containing agent. The cluster-supported electrodes with Pt9/C, Pt15/C (but not with Pt or Pt3) had an electrocatalytic specific activity of 0.5-1 order of magnitude higher than that of a common Pt electrode, in anodic MeOH oxidation in acidic media. Mixing of Pt and Ru clusters resulted in improved activity on C, but not on SPE. In Pt-Sn clusters, Pt3Sn8/C had noticeable activity only after strong anodic treatment. The amount of Pt required for MeOH fuel cells may be decreased by this technique of preparing Pt in a highly dispersed state. The catalytic activity towards the MeOH electrooxidn. of the Pt cluster-supported electrodes greatly dependeds on the Pt cluster size.